US Army Corps of Engineers
St Paul District

AROUND the ROPE

Mississippi River Headwaters Resevoir Study

Volume 1; Issue #1, November 2003

US Forest Service
Chippewa National Forest

Reservoir Operating Plan Evaluation (ROPE)

The U.S. Army Corps of Engineers and the U.S. Forest Service are jointly sponsoring a long-range reservoir operating plan study for the Mississippi River Headwaters reservoirs. This study, called the Reservoir Operating Plan Evaluation, or ROPE, began in December 2001 and will continue for approximately four years. The primary purpose of the study is to evaluate alternative plans for each existing reservoir with the goal of improving systemwide operations and stewardship of the Mississippi Headwaters Reservoirs system.

Primary consideration will be given to tribal trust, flood control, environmental concerns, water quality, water supply, recreation, navigation, hydropower and other public systems; a more natural flow release for downstream river reaches; and, in some lake areas, changes in flood control concerns for differing sections of the total system and possibly even the purchase of land for maximizing efficient operation.

The Minnesota Department of Natural Resources, Ottertail Power, Minnesota Power and collaborating headwaters dam operators are included in this planning effort. They are helping to evaluate and recommend a systemwide operational plan for the headwaters reservoirs. The Mississippi Headwaters Board and the Leech Lake Band of Ojibwe are also playing important roles in this study by helping to coordinate and evaluate alternative plans from the regional perspective.

The ROPE study process relies heavily on interagency and public groups to assist in the plan formulation. Accordingly, numerous interagency task forces and local lake groups have been formed. These voluntary groups will meet periodically to provide technical and public inputs along with additional perspective. The general public will also be kept informed and involved in the study and will be asked to review preliminary reports as alternatives are formulated and evaluated. In addition, spin-off projects and other beneficial activities in the headwaters area could result from this study process.

Gull Lake Dam

What's This All About?

The "Around the ROPE" newsletter is intended to inform, educate and increase interest in the current Reservoir Operating Plan Evaluation. The newsletter is distributed in electronic format to 188 recipients, and by more traditional means to an additional 345 recipients.

Each newsletter will be available online, along with additional information on the study and its progress. From the website, users will be able to receive additional information, monitor the study progress, view present and past newsletters, subscribe to or unsubscribe from the newsletter and ask questions. The website can be retrieved at: www.mvp.usace.army.mil/finder/display.asp?pageid=143.

The newsletter will be distributed periodically, depending on the progress of the study and when additional information becomes available. We encourage all stakeholders to participate throughout this study. Send comments or questions regarding the Headwaters Reservoirs, ROPE or the newsletter to Aaron Snyder at:

CEMVP-PM-ROPE@mvp02.usace.army.mil
or 651-290-5489.

ROPE Computer Models

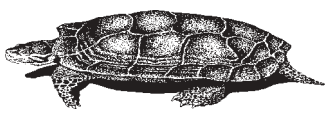
The ROPE study will consider and attempt to balance the many functions of the river and lake/reservoir system as a whole. The various functions include recreation, tribal use, water quality, fish and wildlife habitat protection and enhancements, flood damage reduction, erosion and sedimentation, hydropower production, water supply and other factors.

The study will use two models, the *Prescriptive Reservoir Model (PRM)* and the *Structural Thinking Experimental Learning Laboratory with Animation (STELLA)* model to help evaluate and formulate alternative operating plans.

The PRM model will be used to identify user preferences, evaluate and balance systemwide trade-offs and optimize the aforementioned functions compared to one another. Through this process, PRM will help to identify systemwide alternative operating plans for the lake and river system. The STELLA model will then be used to simulate and test those operating plans to see how they would perform in real life situations (normal, droughts, floods, etc.). An approach that uses both *optimization (PRM)*, which makes decisions based on their value to objectives, and *simulation (STELLA)*, which makes decisions that follow operating instructions or rules, is expected to be an excellent way to evaluate those trade-offs and assess the many conflicting needs and responsibilities of the water system.

Using an optimization model and a simulation model alternately, each informing and updating the other, can help participants better understand the operation of the lake and river system for all interests and functions. This helps the stakeholders develop a plan of operation that balances those objectives as effectively as possible, as everyone is encouraged to share in the vision.

Progress has been made in mobilizing task forces and citizen volunteer groups to provide data and input into the PRM and STELLA models. This fall, additional meetings are planned with these groups and also with the interagency partnering team to complete the initial population of both models (scheduled to be completed in January 2004). Then, the models will be run to evaluate potential operating plans, and findings will be documented in a screening of alternatives report. This report, to be completed in late summer 2004, will be distributed for public and interagency comment.



Gull Lake Meetings

In mid-August (Aug. 20-22), the Erosion Control/Flood Control, Recreation and Environmental task forces met separately at Gull Lake Dam to discuss their respective issues.

Each meeting included presentations on the PRM and STELLA models to help the participants see the plan formulation evaluation capabilities and the inputs and outputs of these models. Beth Faber, representing the Hydrologic Engineering Center, provided the presentation of the PRM optimization model. Kenton Spading, Corps of Engineers' project manager, and Terry Zien, Corps of Engineers' hydrologist, provided information and background regarding the STELLA simulation modeling. The presenters addressed general and technical questions regarding modeling assumptions and processes.

Initial modeling strategies were presented and discussed by the groups. These strategies will be used to incorporate effects into the PRM and STELLA models over the next few months.

Environmental Impact Statement News

Enacted in 1969, the National Environmental Policy Act (NEPA) is regarded as the first modern Federal environmental law. The NEPA requires federal agencies to carefully consider all environmental aspects of their proposed actions. If a federal action is likely to have a significant effect on the quality of the environment, the agency proposing the action is required to prepare an Environmental Impact Statement (EIS). An EIS is a document that presents the proposed action and alternatives to the proposed action, describes the affected environment and discusses the environmental consequences of each proposed and alternative action.

Following the decision that an EIS is required, a number of steps must be taken. The first step is scoping, a process that involves the participation of federal, state and local agencies, Indian tribes and the general public. The most important aspect of scoping is the identification of relevant and significant issues that will be analyzed in depth in the EIS. Scoping is announced in the *Federal Register* through a Notice of Intent to prepare a draft EIS.

Information gathered during scoping is used to prepare the draft EIS, which is subsequently made available for agency and public comment. Also during this time, public hearings are held to further encourage public comment.

Following the comment period, a final EIS is prepared that identifies the agency's "preferred alternative." The final EIS is also made available for agency and public comment. Subsequent to this comment period, a Record of Decision is prepared that states the agency's final decision. The Record of Decision must also identify the environmentally preferable alternative, discuss how and why the agency reached its decision, and indicate whether all practicable means to reduce environmental harm have been included in the agency's preferred alternative, and, if not, why not.

For the Headwaters ROPE Study, an EIS will be prepared for a proposed reservoir operating plan. In this effort, the Corps of Engineers will act as the lead agency and the U.S. Forest Service will act as a cooperating agency. This means the Corps of Engineers has the main responsibility for coordination and preparation of the EIS, but the U.S. Forest Service will play an active role in the preparation and funding of the EIS and the ROPE study in general. It is anticipated that the Notice of Intent will be published in the *Federal Register* later this month.

Questions about the proposed action and the draft should be addressed to: Col. Robert L. Ball, District Engineer, St. Paul District, Corps of Engineers, ATTN: Mr. Terry J. Birkenstock,; Chief, Environmental and Economic Analysis Branch; 190 Fifth St. E., St. Paul, Minnesota 55101-1638 or email: terry.j.birkenstock@usace.army.mil**.**

Highlighting the Headwaters Reservoirs

Beginning with this newsletter, "Around the ROPE" will introduce the Headwaters area by providing a historical look of the purpose of the dams. Each subsequent issue will present a reservoir project and associated chain of lakes, highlighting their unique watershed area and dam operational plan. You will be given a glimpse into the history of each site and the role it plays in today's world.

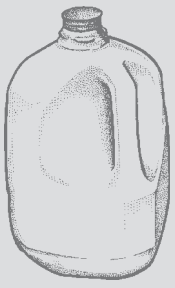
The concept of the Headwater dams originated in the middle 1880s, when lack of water in the Upper Mississippi River during the summer became a great concern. Downriver, the Mississippi River had become a major water highway for shipping commodities, serving the prominent milling industry in Minneapolis, along with the logging industry in the Headwaters regions.

However, because of the seasonal variation of the river between the Headwaters and Lake Pepin, boat passage was difficult, if not impossible, and water flow inconsistent. Between 1852 and 1878, engineers conducted several studies for the creation of a series of dams at the Headwaters, with the intent to regulate water flow for flood control and navigation. In the 1870s, the Corps of Engineers considered a total of 41 reservoirs in Minnesota and Wisconsin. In 1880, Congress authorized the construction of Winnibigoshish Dam, close to the source of the Headwaters. This dam served as an experimental structure for the design and methods that would be used for Leech Lake and Pokegama Lake dams in 1884, followed by Pine River Dam in 1886, Sandy Lake Dam in 1895 and Gull Lake Dam in 1912.

The first dams constructed were earthen embankments filled with puddled clay. The structure through which the water flowed was made of timber, with the exception of Gull Lake Dam, which was built of concrete. Stop logs or steel tainter gates regulated the sluiceways. Between 1899 and 1909, all of the timber dams were converted to concrete structures.

In the 1930s, a series of locks and dams were built on the Upper Mississippi River to control the river level and maintain a nine-foot channel. Combined with this occurrence, the milling and logging industries declined. As a result, the purpose of the reservoirs changed. The Headwater dam sites quickly recognized the new recreational opportunities that abounded in the northern areas. Public land gave way to private, residential and commercial ownership. Property owners became as concerned about water levels as flour millers had been decades before. In the late 1960s and early 1970s, with prudent foresight, the Corps of Engineers built six campgrounds around the reservoirs.

Fascinating Facts



If you were to put all the water from the Headwater reservoirs into "typical" gallon containers and place them side-by-side they would circle the earth at the equator about 1,987 times.

How to Get More Information

ROPE Contact Information

You can become involved in this study. You can volunteer to be a member of a lake group or just take some time to learn more about the operations of the Headwaters dams by visiting the ROPE website. For more information, please use the following contact information.

Website:http://www.mvp.usace.army.mil/finder/display.asp?pageid=143

Newsletter:

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Deborah Griffith 218-692-2025
Deborah.A.Griffith@usace.army.mil

Headwaters Field Offices:

Leech Lake Dam	218-654-3145
Pine River Dam	218-692-2025
Gull Lake Dam	218-829-2797
Pokegama & Winnibigoshish Dams	218-326-6128
Knutson Dam	218-335-8651
Stump Lake Dam	218-751-3120

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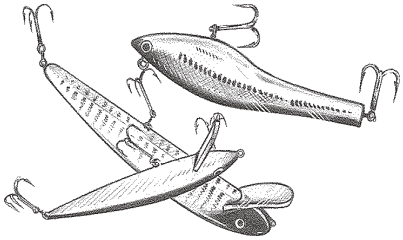
Letters can be directed to:
Colonel Robert L. Ball, District Engineer, St. Paul District, Corps of Engineers, ATTN: Mr. Edward McNally, Project Management Branch, 190 Fifth Street East, St. Paul, MN 55101-1638.



Return Service Requested

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